



# Plastic & Health

## THE HIDDEN COSTS OF A PLASTIC PLANET

### EXECUTIVE SUMMARY and Excerpt

Despite being one of the most pervasive materials on the planet, plastic and its impact on human health is poorly understood. Yet exposure to plastic are expanding into new areas of the environment and food chain as existing plastic products fragment into smaller particles and concentrate toxic chemicals. As plastic production increases, this exposure will only grow.

To date, research into the human health impacts of plastic has focused narrowly on specific moments in the plastic lifecycle, from wellhead to refinery, from store shelves to human bodies, and from disposal to ongoing impacts as air pollutants and ocean plastic. Individually, each stage of the plastic lifecycle poses significant risks to human health.

Together, the lifecycle impacts of plastic paint an unequivocally toxic picture: plastic threatens human health on a global scale.

This report provides a detailed overview of the health impacts associated with plastic at every stage of its supply chain and lifecycle, and it reveals the numerous exposure routes through which human health is impacted at each stage. The report details the physical impacts of ingest-ing, inhaling, and touching plastic, as well as the toxic chemicals associated with those plastic particles, whether chemical additives, processing agents, or byproducts of plastic. This report also reveals that systemic and troubling gaps in our knowledge may exacerbate exposure and risks for workers, consumers, frontline communities, and even communities far removed from the sources of plastic. Despite those gaps, the evidence collected in this report is conclusive that there is an urgent need to adopt a precautionary approach to protect human health from the plastic pollution crisis.

### KEY FINDINGS

**Plastic requires a lifecycle approach.** The narrow approaches to assessing and addressing plastic impacts to date are inadequate and inappropriate. Understanding and responding to plastic risks, and making informed decisions in the face of those risks, demands a full lifecycle approach to assessing the full scope of the impacts of plastic on human health. This includes to ensure that we are not creating yet more and increasingly complex environmental problems in attempts to address this one.

**At every stage of its lifecycle, plastic poses distinct risks to human health,** arising from both exposure to plastic particles themselves and associated chemicals. The majority of people worldwide are exposed at multiple stages of this lifecycle.

- **Extraction and Transport of Fossil Feedstocks for Plastic**

The extraction of oil and gas, particularly the use of hydraulic fracturing for natural gas, releases an array of toxic substances into the air and water, often in significant volumes. Over 170 fracking chemicals that are used to produce the main feedstocks for plastic have known human health impacts, including cancer, neurotoxicity, reproductive and developmental toxicity, impairment of the immune system, and more. These toxins have direct and documented impacts on skin, eyes, and other sensory organs, the respiratory, nervous, and gastrointestinal systems, liver, and brain.

# Main Plastic Resin Types and Applications in Food Packaging

Don't be fooled: The  symbol is only telling us what the packaging is made of.

Polyethylene  
Terephthalate



Water and soft drink bottles, salad domes, salad dressing, peanut butter containers- Clean rigid containers are recyclable

High-Density  
Polyethylene



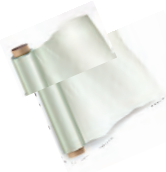
Milk bottles, freezer bags, dip tubs, crinkly shopping bags, ice cream containers, juice bottles, shampoo, detergent bottles- Clean rigid containers are recyclable

Polyvinyl  
Chloride



Cosmetic containers, commercial cling wrap- Clean rigid containers are recyclable

Low-Density  
Polyethylene



Polypropylene



Squeeze bottles, cling wrap, shrink wrap, rubbish bags- **Not recyclable**

Polystyrene



Microwave dishes, ice cream tubs, potato chip bags, dip tubs-  
Clean rigid containers are recyclable

Expanded  
Polystyrene



CD cases, water station cups, plastic cutlery, imitation

Polyethylene  
and mixed  
plastics



“crystal glassware,” video cases- **Not recyclable**

Foam polystyrene hot drink cups, hamburger take-out clamshells,